IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	John McFarland Harris et al.	Group Art Unit:	2617
Serial Number:	10/647,424	Examiner:	Huy C. Ho
Filing Date:	August 25, 2003	Confirmation:	2794
Docket Number:	CE10278R		
Title:	System and Method for Controlling the Operating Characteristics of a Buffer		

APPEAL BRIEF

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Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 41.37, the appellants respectfully submit this brief in support of their appeal.

(i) Real Party in Interest

The real party in interest is Motorola, Inc.

(ii) Related Appeals and Interferences

No related appeals or interferences are known to the appellants, to the appellants' legal representatives, or to the assignee that will directly affect, be directly affected by, or have a bearing on the Board's decision in this appeal.

(iii) Status of Claims

Presently pending claims 1 through 9 and 22 through 25 have been twice and finally rejected and are being appealed.

Claims 10 through 21 are cancelled.

No claims have been allowed.

(iv) Status of Amendments

An Amendment After Final was filed on May 27, 2008, in response to the Final Office Action of February 25, 2008. The Amendment After Final was entered.

(v) Summary of Claimed Subject Matter

Independent claims 1, 6, and 22 are involved in this appeal.

In the method of claim 1, a destination device (106 of Figure 1) receives communications (202 of Figure 2) from a source device (102 of Figure 1). The destination device (106) puts the received communications (202) into a play-out buffer (308 of Figure 3) and plays them to a user of the destination device (106). The play-out buffer (308) has a minimum threshold. When the play-out depth of the play-out buffer reaches this minimum threshold, the destination device (106) sends an indication (218 of Figure 2) to the source device (102). The method of claim 1 is described in the specification at paragraphs **[0012]**, **[0021]**, **[0022]**, and **[0028]** through **[0030]** (that is, page 3, lines 2 through 12, page 5, lines 4 through 18, and page 6, line 21, through page 7, line 3) and is illustrated in Figure 2.

The method of claim 6 is a counterpart to the method of claim 1. In claim 6, the source device (102) encodes communications (202) at a particular coding rate and sends the encoded communications (202) to the destination device (106). The source device (102) receives an indication (218) from the destination device (106) and, based on the received indication (218), adjusts the coding rate (224 of Figure 2). The method of claim 6 is described in the specification at paragraphs **[0013]**, **[0014]**, **[0024]**, **[0025]**, **[0027]**, and **[0033]** (that is, page 3, lines 13 through 25, page 5, line 30, through page 6, line 7, page 6, lines 14 through 20, and page 7, lines 16 through 19) and is illustrated in Figure 2.

The apparatus of claim 22 can perform the method of claim 1. The play-out buffer (308) stores communications (202) received from the source device (102). An indication register (310 of Figure 3) represents the remaining play-out depth of the play-out buffer (308). A controller

(312 of Figure 3) uses a wireless transceiver (318 of Figure 3) to send an indication message (218) when the play-out depth of the play-out buffer (308) reaches a threshold. The apparatus of claim 22 is described in the specification at paragraphs **[0034]** through **[0046]** (that is, page 7, line 20, through page 9, line 27) and is illustrated in Figure 3.

(vi) Grounds of Rejection to be Reviewed on Appeal

The Final Office Action dated February 25, 2008, rejects claims 1 through 4, 6, 7, and 22 through 25 under 35 U.S.C. § 103(a) as obvious in light of U.S. Patent 6,658,027 ("Kramer") and U.S. Patent Publication 2001/0055276 ("Rogers"). Claims 5, 8, and 9 are rejected as obvious in light of Kramer, Rogers, and U.S. Patent 6,785,261 ("Schuster").

(vii) Argument

The argument of the appellants is quite straightforward: The cited art does not show all of the elements of the pending claims.

As is well known in the art, when the play-out depth of an audio play-out buffer becomes too low, there is a danger that a vocoder receiving information from the play-out buffer will either be "starved" for information to play or will at least have to degrade the audio quality of what it is playing. The cited art presents a few ways for dealing with this problem.

For example, Kramer teaches that when the play-out depth reaches a threshold (called by Kramer the "low water mark threshold"), the destination device feeds its vocoder by extending silent passages:

> However, if the low water mark has been surpassed, the system inserts a silence frame after a silence frame is played out.

Kramer, column 10, lines 8 through 10.

Argument for Independent Claim 1

Kramer does not, however, teach the step of communicating with the source device when the threshold is reached. In particular, Kramer does not teach this element of the presently pending claim 1:

> sending an indication to the source mobile unit when the remaining play-out depth of the play-out buffer in the destination mobile unit reaches a predetermined threshold.

In the parts of Kramer cited against this element (Kramer column 5, line 1 through 27, column 9, lines 60 through 67, and column 10, lines 1 through 10), Kramer only teaches the action of altering how frames are sent to the vocoder of the ***local***, destination device. Kramer nowhere discusses passing a threshold indication back to the source device.

Nor does Rogers supply this lack. When the play-out depth of the buffer decreases to a threshold, Rogers responds by adjusting the sampling rate of the ***local*** vocoder. (In fact, the title of Rogers is "Apparatus for Adjusting a Local Sampling Rate Based on the Rate of Reception of Packets.") The part of Rogers cited against the above quoted element emphasizes this ***local*** response:

> If the jitter buffer depth drops below the second threshold, this signals that the total delay of the jitter buffer is getting too long and this can also negatively affect the perceived audio quality. This is likely to result from a rate mismatch such that the local (receiver) sampling rate is faster than the far-end (transmitting) sampling rate. Thus, for example, if the Jitter Buffer is less than 1/4 full (assuming a second threshold of 1/4), the controller decreases the ***local*** sampling rate to compensate for the mismatch.

Rogers, paragraph **[0042]** (emphasis added). (See also, for example, Figure 3.)

In sum, nowhere does the cited art, either separately or in any combination, show a destination device sending an indication to a source device when the play-out depth reaches a threshold.

Argument for Independent Claim 6

The method of independent claim 6 is the sender-side counterpart to the receiver-side method of claim 1 and is also not shown by the cited art.

Argument for Independent Claim 22

The apparatus of claim 22 has an element equivalent to the method element of claim 1 quoted above and is patentable over the cited art for at least the same reasons as given above.

Argument Conclusion

The cited art does not show all of the elements of the presently pending claims. Nor is there anything in the cited art even suggesting that the destination device work with the source device to adjust the destination device's play-out depth. Therefore, the claims are patentable over the cited art. The appellants request that this application be passed on to issue.

Please charge any fees that may be due to Deposit Account 502117, Motorola, Inc.

Respectfully submitted,

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(viii) Claims Appendix

1. (Original) A method for regulating a remaining play-out depth of a play-out buffer in a destination mobile unit, the method comprising:

receiving at least one communication from a source mobile unit in a play-out buffer, the play-out buffer having an associated play-out depth;

playing the communications received at the play-out buffer to a recipient at the destination mobile unit;

determining the remaining play-out depth of the play-out buffer in the destination mobile unit; and

sending an indication to the source mobile unit when the remaining play-out depth of the play-out buffer in the destination mobile unit reaches a predetermined threshold.

2. (Original) The method of claim 1 comprising:

encoding and transmitting the communications from the source mobile unit to the destination mobile unit at a coding rate;

receiving the indication from the destination mobile unit; and

adjusting the coding rate of the communications sent from the source mobile unit to the destination mobile unit as a function, at least in part, of the indication received from the destination mobile unit.

3. (Original) The method of claim 2 wherein adjusting the coding rate of the source mobile unit comprises adjusting the coding rate of a vocoder in the source mobile unit.

4. (Original) The method of claim 1 wherein sending an indication comprises sending a real-time transport protocol (RTP) header.

5. (Original) The method of claim 2 wherein receiving an indication comprises receiving a negative acknowledgment message for a frame.

6. (Original) A method of regulating a coding rate of communications transmitted from a source wireless unit to a destination wireless unit, the method comprising:

encoding communications in a vocoder at the source mobile unit at a coding rate and transmitting the communications to the destination unit;

receiving an indication from the destination mobile unit; and

adjusting the coding rate of the vocoder in the source mobile unit according to the indication received from the destination mobile unit.

7. (Original) The method of claim 6 wherein receiving an indication comprises receiving a real-time transport protocol (RTP) header.

8. (Original) The method of claim 6 wherein receiving an indication comprises receiving a negative acknowledgment message.

9. (Original) The method of claim 8 wherein receiving the indication comprises receiving the NAK that originated because of a request for retransmission for a frame that was originally sent more than a threshold number of seconds in the past.

10-21. (Cancelled)

22. (Previously Presented) A device for controlling a rate of incoming communications comprising:

a wireless transceiver having at least one output;

a play-out buffer having a play-out depth and storing communications received from a source mobile unit;

an indication register containing data representing remaining play-out depth of the play-out buffer;

a controller coupled to the play-out buffer and the indication register, the controller also coupled to the transceiver via an indication message output, the indication message output corresponding to contents of the indication register;

such that the wireless transceiver will transmit a communication that comprises the indication message output when the play-out depth reaches a predetermined threshold.

23. (Previously Presented) The device of claim 22 comprising means for playing the communications received at the play-out buffer to a recipient;

24. (Previously Presented) The device of claim 22 comprising means for determining the remaining depth of the play-out buffer.

25. (Previously Presented) The device of claim 22 wherein the indication of play-out depth is comprised in an RTP header.

(ix) Evidence Appendix

Not applicable.

(x) Related Proceedings Appendix

Not applicable.